

RSTUYW	1:00	2:00	3:00	4:00	5:00	6:00
Clue Shelf	W F R Y S/U	F	F	S	S	S W H Y R/T
(5)	S	W/Y	W/Y	T	U	R
(4)	S U U	Y S R	W Y S	T W Y	U R/T W	R R/T T
(3B)	S	U	R	W/Y	W/Y	T

Since U can meet Patterson at 2:00, eliminate (B).

Now try putting U at 3:00 to check (C).

This forces S to be first based on our deductions. Next, place the WY block since it requires two spaces. Our two remaining spaces have to be T and R. However, neither of these can be placed in time 2:00.

RSTUYW	1:00	2:00	3:00	4:00	5:00	6:00
Clue Shelf	W F R Y S/U	F	F	S	S	S W H Y R/T
(5)	S	W/Y	W/Y	T	U	R
(4)	S U U	Y S R	W Y S	T W Y	U R/T W	R R/T T
(3B)	S	U	R	W/Y	W/Y	T
(3C)	S	U	U	W/Y	W/Y	

From this, it is clear that U *cannot* meet at 3:00. This matches the question, so select (C). Finally, make sure that you cross out the attempt to put U at 3:00 so that this invalid play doesn't get mixed with your prior work.

Before we move on to the last General question, we want you to note the relationship between General *must be true* and *must be false* questions. These questions ask about possible deductions that can be made. As you study for the test and practice making deductions, look at these General questions when you review your work. Ask yourself, “Did I make this deduction?” If the answer is “no,” ask yourself why not. Finally, work backward from the correct answer to see if you can make the deduction on your own. This is a powerful method for building your deductive reasoning skills. Now, let’s finish this game out.

6. Which one of the following could be the order of Patterson’s meetings, from earliest to latest?

- (A) Upton, Yansky, Sanchez, Reilly, Tang 
- (B) Upton, Reilly, Sanchez, Tang, Yansky 
- (C) Sanchez, Yansky, Reilly, Tang, Upton 
- (D) Sanchez, Upton, Tang, Yansky, Reilly 
- (E) Sanchez, Upton, Reilly, Yansky, Tang 

Here’s How to Crack It

This question can be very overwhelming. We asked you earlier why this was not a Grab-a-Rule. Hopefully, you noticed that the lack of the element W prevents this question from being a Grab-a-Rule. It also means that three of the four rules do not apply directly to the problem. However, for all General questions, check your deductions first. Just be very careful when you do so since this question does not include all the possible spaces. From our deductions, U or S must always be first. This is true of all five answers. Our deductions also show that either R or T must be last. Both (B) and (C) have R and T in the middle of the appointments. This violates the deduction, so eliminate them. Now focus on the long chain deduction which says that S...WY...T. Choice (A) has Y before S so eliminate it. Choice (D) has Y after T so eliminate it. The answer is (E).

To summarize, here's the step-by-step approach to all games.

- | | | |
|-----------------------|---|--|
| Prepare
the Game | { | Step 1: Diagram and inventory |
| | | Step 2: Symbolize the clues and double-check |
| | | Step 3: Make deductions and size up the game |
| Work the
Questions | { | Step 4: Assess the question |
| | | Step 5: Act |
| | | Step 6: Use Process of Elimination |

Now that we've walked you through the process, turn the page and play the game on your own. Feel free to refer to notes on the steps, and don't worry about time. Once you've completed the game a second time, come back to these pages and assess how closely you were able to reproduce the approach on your own.

GAME 1

On one afternoon, Patterson meets individually with each of exactly five clients—Reilly, Sanchez, Tang, Upton, and Yansky—and also goes to the gym by herself for a workout. Patterson's workout and her five meetings each start at either 1:00, 2:00, 3:00, 4:00, 5:00, or 6:00. The following conditions must apply:

Patterson meets with Sanchez at some time before her workout.

Patterson meets with Tang at some time after her workout.

Patterson meets with Yansky either immediately before or immediately after her workout.

Patterson meets with Upton at some time before she meets with Reilly.

1. Which one of the following could be an acceptable schedule of Patterson's workout and meetings, in order from 1:00 to 6:00?

- (A) Yansky, workout, Upton, Reilly, Sanchez, Tang
- (B) Upton, Tang, Sanchez, Yansky, workout, Reilly
- (C) Upton, Reilly, Sanchez, workout, Tang, Yansky
- (D) Sanchez, Yansky, workout, Reilly, Tang, Upton
- (E) Sanchez, Upton, workout, Yansky, Tang, Reilly

2. How many of the clients are there, any one of whom could meet with Patterson at 1:00?

- (A) one
- (B) two
- (C) three
- (D) four
- (E) five

3. Patterson CANNOT meet with Upton at which one of the following times?

- (A) 1:00
- (B) 2:00
- (C) 3:00
- (D) 4:00
- (E) 5:00

4. If Patterson meets with Sanchez the hour before she meets with Yansky, then each of the following could be true EXCEPT:

- (A) Patterson meets with Reilly at 2:00.
- (B) Patterson meets with Yansky at 3:00.
- (C) Patterson meets with Tang at 4:00.
- (D) Patterson meets with Yansky at 5:00.
- (E) Patterson meets with Tang at 6:00.

5. If Patterson meets with Tang at 4:00, then which one of the following must be true?

- (A) Patterson meets with Reilly at 5:00. 
- (B) Patterson meets with Upton at 5:00. 
- (C) Patterson meets with Yansky at 2:00. 
- (D) Patterson meets with Yansky at 3:00. 
- (E) Patterson's workout is at 2:00. 

6. Which one of the following could be the order of Patterson's meetings, from earliest to latest?

- (A) Upton, Yansky, Sanchez, Reilly, Tang 
- (B) Upton, Reilly, Sanchez, Tang, Yansky 
- (C) Sanchez, Yansky, Reilly, Tang, Upton 
- (D) Sanchez, Upton, Tang, Yansky, Reilly 
- (E) Sanchez, Upton, Reilly, Yansky, Tang 

**Tip!**

Use a whole sheet of scratch paper for each game and build your diagram by adding a new line for each question that has new information.

Cracking Game 1

Games Technique: Self Analysis There's an old axiom that says we learn best from our mistakes. This axiom holds true on the Games section. A key strategy is to fill out a self-analysis of the game. Figure out what you did well and how to replicate your success. Also, focus on where and how you messed up. Try to identify the failed approaches that you used and figure out ways to avoid these mistakes in the future.

Every successful self-analysis will include a few things. It will include data on the basic approach, the question types, and the number right and wrong. Next, a good self-analysis should also distinguish between when you get something correct and when you get something right but got lucky. For wrong answers, you should distinguish between careless mistakes and don't know hows. You are reading this book to help you with the know-how. Careless mistakes are something only you can control. Something we tell all of our classroom students is that getting an answer wrong because you don't know how to work it is fine. Getting an answer wrong that you know how to work, but just mess up, is a lost point. Remember, only you can prevent test errors!

Below you will find a sample self-analysis. You are encouraged to use this one or develop one that fits your study style.

Steps 1–3 Assessment

Diagram and elements: I got this correct without issues.

Symbolize and double-check: I got burned here. The clues seemed too easy. I sort of double-checked but really just reread each of the clues. I ended up reading the second clue wrong twice in a row. Next time, I will force myself to double-check by looking at the symbol I made and then going back to the clue.

Deductions: These were tough. I missed two from the explanation. However, I didn't waste too much time and after finding the clue I got wrong, I was still able to get most questions correct. Next time I will specifically look for deductions from clues that share the same element.

Steps 4–6 Assessment

Question 1: Grab-a-Rule. I was stuck between two answers that were both “correct.” I ended up triple-checking my clues and found an error in my symbols. I got this right in the end. I know I can do that again.

Question 2: General question; saved for later; got it right but guessed; had some deductions, but not all. I used prior work and deductions to eliminate (A), (D), and (E). Got stuck after that. Next time, I will get my pen moving and diagramming to see if a third element would work.

Question 3: General question; did it last; got it wrong; I honestly had no idea where to start on this one. It wasn’t on my deduction list and I wasn’t able to eliminate anything from my prior work! I understand the explanation, but I’m not sure I can do that on my own yet. I will play this game again in a few days to see if I can get it right then.

Question 4: Specific question, did it last of the specifics (3rd I think); got it wrong. I forgot about the except. I eliminated (A) and (B), but then chose (C) since it worked. Next time, I will write out next to the question what I am going to POE.

Question 5: Specific question; did it right after the Grab-a-Rule; got it right and I know why. I can do this question again on a different game with full confidence.

Question 6: General question; I did it differently from the explanation but got it right. My way was pretty time-consuming. I’m not sure if I can get the same style of question right on a different game. I’m going to hit this question again when I replay the game.

On the next page, you will find a place for you to perform your own self-analysis of Game 1.

Range Clues

Range clues are a category of clues exclusive to Ordering games. Range clues establish some sort of partial relationship between two or more elements. Consider the clue from the Pungent game in Lesson 1: *Range clues are not easily symbolized with ellipses, although dashes may also be used.* Below, we have some examples of range clues. You’ll be symbolizing each hint, and then read the tracking explanation.

From 2015 to the west of 2015 and to the west of 2015.

This clue is giving you two pieces of information about A. It is always best to combine these pieces of information into one symbol, but be careful! Make sure you are consistent throughout the game about which way is east and which way is west—often time problems these basic pieces of knowledge can get very complicated.

Self-Assessment

Steps 1–3 Assessment

Steps 4–6 Assessment

LESSON 2: GOOD SYMBOLIZATION AND DEDUCTIONS

Good symbolization is a major step toward getting all the questions in a particular game correct. Success with symbolization comes from familiarity and practice. There are a number of common types of clues that you'll see repeatedly on the LSAT; once you become familiar with them, most of the process becomes mechanical. While you're practicing your symbolization, keep in mind the three Cs: *clear*, *consistent*, and *concise*.

Clear: Your symbols should make quick and apparent sense. If you find yourself having to interpret a clue as you use it in the game, your symbol isn't working.

Consistent: As we mentioned above, you should start to recognize distinct types of LSAT clues that you'll symbolize in the same manner each time they show up in a game. But you should also be sure that your clues are consistent with one another within a game and that they are consistent with the way that you drew your diagram. In other words, everything should fit together.

Concise: Keep symbols as short and simple as possible. Part of the reason for having them is to eliminate the wasted energy and time of reading those long-winded, confusing clues each time you refer to them in working the questions.

While the language of a clue can make it challenging to interpret, the LSAT has produced clues that match recurring patterns. For the ease of categorization, we have named these clues patterns. Common clues on the LSAT include *range*, *block* and *antiblock*, *concrete* and *placeholders*, *element*, and *conditionals*. Conditional clues require special focus and we will cover them in a later lesson. Let's take a look at good symbols for these other common types of clues.

Range Clues

Range clues are a category of clues exclusive to Ordering games. Range clues establish some sort of spatial relationship between two or more elements. Several of the clues from the Patterson game in Lesson 1 were range clues. Range clues are most easily symbolized with ellipses (though dashes may also be used). Below, we have some examples of range clues. Practice symbolizing each first, and then read the cracking explanation.

Anna sits to the east of Bob and to the west of Carol.

This clue is giving you two pieces of information about A. It is always best to consolidate these pieces of information into one symbol, but be careful! Make sure you are consistent throughout the game about which way is east and which way is west—under time pressure, these basic pieces of knowledge can get twisted around.

Tip!

One useful thing to do on Ordering games is to label the directions above the first and last position. For example, if an Ordering game deals with directions, write "west" above column 1 and "east" above the final column.

“To the east” on a game would mean to the right, so the first thing to do would put A to the right of B. Then, the clue states that A is west of C. This would mean that A is to the left of C. Your final clue should look similar to this.

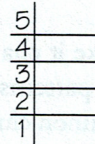
B...A...C

The ellipses indicate that the distance between B and A is unknown. There might be one or more elements in between them or they could end up right next to each other. For example, B could be first and A could be second, or B could be second and A could be fifth. You can think of the ellipses as a rubber band; sometimes the elements will be pulled apart from one another and one or more other elements will be placed in between them.

Let’s consider another example.

In a five-story building, John lives on a higher floor than Walter.

A clue’s symbol makes sense only in the context of a diagram. So for our next example, we’re going to draw a rough diagram similar to what you would have already constructed in an actual game. After looking at the diagram, try symbolizing this clue on your own.



Remember one of our Cs: *consistent*. We want our symbol to look like what happens in our diagram. At the same time, we don’t want to create a different symbol for every possible situation the LSAT throws at us. We want our symbol system to be *concise* as well. This is another range clue; therefore, we will still use ellipses. However, we also want our symbol to look like our diagram, so the clue should be vertical too. Take a look at our symbol.

J
:
W

Range clues can also take more complex forms. Consider the following:

A comes before both B and C.

Of course, you could break this clue into two distinct pieces and symbolize each half of the clue individually. However, one of our three Cs is *concise*. The more information we can pack into a single clue, the more powerful it is. Be careful about making assumptions though. Below you will find a bad symbolization. Take a moment to think about the symbol compared to the clue. Why is this example wrong?

A...B...C (Remember, this is wrong!!)

We're hoping that you spotted an assumption that we made. According to the clue, A is before both B and C, which is supported by the symbol. However, what we don't know is the relationship between B and C. It is possible that C could be before B without violating this clue. As a result, we need our symbol to show that the relationship between B and C is unknown. Your final clue should look similar to this.

A...B
A...C

Let's look at one final example of a more complex range clue. As above, try to symbolize it yourself without making any assumptions.

X does not follow Y.

You may have been tempted to switch this clue back to front to read "X is before Y." Be very careful if you do this! Technically, that is a deduction and not a clue symbolization. Depending on the structure of the ordering game, it is possible that switching the clue back to front would include some assumptions. We recommend symbolizing the clue as literally as possible. After you move into the deduction stage, you can consider whether switching the clue back to front is supported by the diagram. Your final symbolization should look like the following.

Y...X

Block and Antiblock Clues

The next category of clues is closely related to range clues, with one major difference. Consider the following example.

In the alphabet, A comes immediately before B.

Similar to range clues, the relative position of the two elements is fixed. A is first, B comes later. The key difference is the idea of "immediately." There is an additional constraint in this type of clue that removes the ambiguity inherent in range clues. These two letters must appear in this order and next to each other each time. Since this clue forms a block of two or more elements, we have dubbed it a block clue. Symbolize this clue by placing the elements in the proper order and putting a block around them. Make sure to draw a line between the two elements to show that they appear in different columns (block clues can also place two elements in the same category). The symbol should look similar to this.

A	B
---	---

Block clues are among the most useful clues in any game because they use up more spaces with fixed information. Even if the block is reversible, like the WY clue in Game 1, you still know that two spaces must be filled at the same time. If you have a game with multiple block clues, it is useful to take a minute to consider how the blocks must interact with one another. Sometimes, multiple block clues will limit a game to only two or three possible solutions. Dare we say, block party anyone?

Now that you are done groaning, let's look at a few more examples.

The three boys all sit in consecutive seats, with one girl immediately before them and one girl immediately after.

This clue gives you several pieces of information. First, there are exactly three boys. Second, there are at least two girls. Third, the three boys all sit together. Fourth, one girls sits on either end of the line of boys. Let's put it all together.

G	B	B	B	G
---	---	---	---	---

Notice that we didn't write "G3BG." Instead, we wrote out three separate Bs. The same goes for symbolizing the elements when you know how many of each type you have. If a clue tells you that you have five engines, for example, write "EEEEEE" and not "5E." And if later you are given further characteristics about the boys and girls, such as what color hats they might be wearing, you will be able to note these characteristics as another layer below the first symbol. There will be more on this method later in this lesson.

Think about the building example above. Below is a variant of that clue. Remember to be *consistent*: we want our symbol to look like what happens in the diagram.

In a five story building, J lives two floors above W.

As with the earlier range clue, this clue should be vertical too. But be careful here—if J lives two floors above W, there is only one floor that actually separates them. Take a look at our symbol.

J
—
W

As you can see, the wording is meant to lead you astray: there is a big difference between "J lives two floors above W" and "there are two floors between J and W." If you weren't vigilant and had inserted an extra floor, your game would have swiftly degenerated into confusion.

Tip!

If you are ever playing a game and a specific question is impossible to play due to the clues, double-check your clues. It is likely you missed something.

As you read and attempt to symbolize the next clue, take a moment to think about its similarity and differences to the other clues in this section. Ask yourself why it was included here.

The two philosophers never sit together.

This is very similar to a clue that you will see in the game at the end of this section. This clue doesn't give us information about how two elements *must* be positioned with relation to each other, but rather how they *cannot* be. Here we know that there are two Ps and that these two Ps can never be together. This is a basic *antiblock*.



If the game ever gives us the placement of one of our philosophers, we know now that the other philosopher can't go immediately to the right or left of the first one. We also know that there are exactly two philosophers from the concrete language used in the clue. If we weren't sure how many philosophers there were in the game, we would want to be sure to note that fact in addition to our antiblock clue.

Concrete Clues

Concrete clues are exactly what they sound like. Any clue that gives you specific, concrete information is a concrete clue. The best way to symbolize these is directly on the diagram. Consider the following.

E is the fifth letter of the alphabet.

If your diagram consists of seven places, you would place E under the fifth column on the clue shelf of your diagram. It is also useful to write "on diagram" next to the number for this clue on your clue list.

1	2	3	4	5	6	7
				E		

For the rest of the example clues in this section, we have provided a sample diagram. Practice symbolizing each one on your own before reading the explanation.

Either M or N is chosen first.

1	2	3	4	5	6	7

While this clue is less specific than the previous one, we still know that there are only two possibilities for the first column. Use a slash to indicate “or” and put both letters in column one on your clue shelf.

1	2	3	4	5	6	7
M/N						

O is either second, third, or fourth.

1	2	3	4	5	6	7

This clue is a bit more complex. The clue limits O to one of three possible rows out of seven. However, there is still a lot of flexibility here. One way to efficiently symbolize this is with a spider diagram. Place the O above the diagram and draw three arrows from the O to each of the spots 2, 3, and 4.

		O				
1	2	3	4	5	6	7

The first letter is always the same as the last letter.

Believe it or not, this is still a concrete clue. You might be feeling a bit out of your element here (since none are mentioned). However, this clue provides specific information about two positions on the diagram. Once another clue or question places an element in either position, the other position is automatically filled. The easiest way to symbolize this clue is with an equals sign.

$$1 = 7$$

Notice that we didn't draw an arrow from column 1 to column 7. Since clues must be *consistent*, we don't want to confuse the use of arrows in the spider-like diagram with arrows for this type of clue.

B is neither first nor last.

1	2	3	4	5	6	7

Just like antiblocks are related to block clues, concrete clues can also be negative. Simply mark this element on your clue shelf and draw a line through it to indicate that elements cannot belong there.

1	2	3	4	5	6	7
B						B

Placeholders are a type of concrete clue specific to Grouping games. We will be covering those in more detail in the next lesson.

Element Clues

Some clues can address the elements in the game by adding repeating elements or limiting how often a specific element can occur. Clues can even divide elements into distinct categories. These need to be symbolized correctly. Consider the following.

A, B, and C are saxophonists; D, E, and F are percussionists.

In this case, we are given elements that fall into two categories: saxophonists and percussionists. We must have a way to keep these straight as we work the game. Probably the simplest way to accomplish this is by symbolizing one group with uppercase letters and one with lowercase letters. We'll end up with the following symbols.

$$S: A B C$$

$$p: d e f$$

There are games that have more than two types of elements, or elements that can have more than one characteristic associated with them. In these cases, you should use subscripts to distinguish the elements. For instance, if we had those same saxophonists and percussionists, but we were also told that A and f were leads and C and e were backups, we would need some way to keep all of this straight. Furthermore, we might have to assign these elements to either the marching band or the orchestra, if these are the groups available in the game. We would need to make sure that we could tell what characteristics each element had so that we could assign them accordingly. Here's how we would symbolize the leads (L) and backups (B).

$$S: A_L B C_B$$

$$p: d e_B f_L$$

You'll have to make an effort to keep your diagram neat, but now you'll be able to work with the elements effectively.

In addition to clues organizing the elements into categories, clues can also expand or limit the total number of elements you have. These affect the distribution of elements. Let's look at an example.

There is at least one fire drill per week.

How would you do this one? This doesn't give us very concrete information because we still don't know exactly how many fire drills there will be each week. But it is an important piece of information because we know for sure that we have to include a fire drill in each valid arrangement for the game. It's a pretty simple piece of information, so our symbol will also be pretty simple. Don't succumb to the urge to just keep it in your head; yes, it's simple, but no, that doesn't give you license to skip the visualization. Here's a good way to symbolize it.

$$F^{1+}$$

We used the plus sign to indicate *at least*, which will remind us that we can have more than one of these, according to the rules. A corollary clue type is one that tells you that an element will be used *at most* a certain number of times; in that case we would use a minus sign as the superscript.

Here's a summary of how we symbolized each clue type.

Clue	Symbol	Clue Pattern								
Anna sits to the east of Bob and to the west of Carol.	$B \dots A \dots C$	Range Clue								
In the alphabet, A comes immediately before B.	<table border="1"><tr><td>A</td><td>B</td></tr></table>	A	B	Block Clue						
A	B									
The two philosophers never sit together.	<table border="1"><tr><td>P</td><td>P</td></tr></table>	P	P	Antiblock Clue						
P	P									
Either M or N is chosen first.	<table><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>M/N</td><td></td><td></td><td></td></tr></table>	1	2	3	4	M/N				Concrete Clue
1	2	3	4							
M/N										
A, B, and C are saxophonists; D, E, and F are percussionists.	$S: A \ B \ C$ $p: d \ e \ f$	Element (inventory) Clue								
There is at least one fire drill per week.	F^{1+}	Element (distribution) Clue								

Games Technique: When Pictures Fail

Ideally, you will symbolize every clue. Some clues, however, have no clear and concise visual equivalent, especially negative clues that do not refer to any specific element. For example, consider the following two clues.

No more than three books of any given subject are put on the shelf.

Players cannot score more than three points in the first round.

A visualization of these statements would end up being obtuse and potentially confusing, ruining the point of symbolizations in the first place. We need another method. Remember that we want to keep all clue information in one place and not have to refer to the written information provided. The key is crib notes. Jot down the essence of the clue in a few words among the rest of your clues. That way you can't forget about it and you won't have to wade through the original, confusing clue. Here are our examples for the two clues above.

Max 3/subject

Round 1: max 3 points

Games Technique: Making Deductions

Even though we've worked through only a single game, you should already be realizing how important it is to make deductions before you start to work the questions. Think of them as unwritten clues. You can't make good deductions by briefly glancing at your diagram and clues while hurrying to get to the questions. You have to look carefully at the diagram and your symbols. Some people think that making deductions is the result of some kind of epiphany—that you either see them or you don't. Actually, finding deductions is the result of a purely mechanical process. Once you understand the process and have had some time to practice it on a number of different games, you'll be able to ferret out those critical extra pieces of information that will save you valuable time down the road. Here's an overview of the process.

- Start with each clue individually. Check the fit of your clues into your diagram. Sometimes combined clues can get very large, and they may fit into your diagram in only one or two ways. Even if a clue isn't particularly large, you should still be able to get some information this way: for a range clue, often you can find places where the elements involved can't go; for a block clue, you will sometimes find that the number of places it can actually fit is very restricted. Think about the clue from Game 1 about Sanchez and the workout. S was before W so W could never be first.
- Look for elements, or for areas of your diagram, that are mentioned in more than one clue. The more times an element or location is mentioned in the clues, the more likely you can combine the clues into some powerful deductions. Sometimes, particularly in Ordering games, you'll be able to combine more than one range clue or block into a single symbol and that provides you with new information. We saw this with the large deduction we were able to make with S...W/Y...T in the first game.
- Look for sweeping or powerful clues. These are clues that affect many elements and many areas of your diagram. Such clues are fairly rare, but when they're present, pay close attention to them. They often work like super-antiblocks—clues that tell you whole elements can't appear next to one another in your diagram. Because they apply so broadly, they're often the source of fruitful deductions.
- Look for the ways that your deductions interact with new rules and the remaining elements. Deductions can often build off one another. It is often helpful to make a round of deductions, and then run through the clues a second time to see if you can make any new deductions. We saw this in the first game. We first noted that W, T, and R couldn't be first. Once we made the large chain deduction, we were able to deduce that Y couldn't be first. Finally, since there were only six elements and the first space couldn't have four of them, we were able to deduce that only S/U could be first!

- Deductions that start with *if* are bad; deductions that start with *either* are good. In other words, you don't want to find yourself following lines of reasoning like this: "Well, if F goes there, then that means G has to go here, and then...." Those deductions are rarely, if ever, useful. Remember that you are looking for things you can write down that are true all the time. The good twin of this kind of deduction is the one that goes something like this: "Either F is here, or else F is there; there are no other choices." That deduction, because it's so well defined and concrete, is going to be extremely useful.

Finally, it's important to keep deductions in perspective. Remember that the reason you're looking for them is to make your life *easier*, not harder. Deductions save you time by giving you more information to use on every question, but you give that advantage back if you spend a long time starting unproductively at a game hoping to find a deduction.

When you're looking for links, go through the following checklist:

- ✓ I have looked at each clue individually for deductions.
- ✓ I have looked at combinations of clues that share the same element.
- ✓ I have looked at combinations of clues that mention the same location in the diagram.
- ✓ I have compared my deductions against the remaining elements.
- ✓ I have not found any deductions for the last 30 seconds.

Once you've moved through the list in this order, head decisively to the questions. It's okay if you don't find any deductions, or if you find just one or two small ones; games don't always have big deductions. And realize that it's not the end of the world if you're working a game that does have big deductions and you somehow miss them. The first few questions will take a little longer, but they'll still be workable, and you can learn about the game as you go. Sometimes the only way to find big deductions on a game is to stumble across them, and the only way to do that is to actually get into the game and start working with it. As long as you keep moving forward, you'll be all right. If you sit and stare, you'll get yourself in trouble.

Finally, you should always take several minutes to self-assess your progress after playing a game. One of your self-assessment questions should be about deductions. Did you make all the deductions possible? Were there any you noticed during the game? How can you notice them sooner? You should also look at all the General *must be true* and *must be false* questions. The correct answer to each of these is technically a deduction that you could have made. Sometimes the answer to these questions will rely on a complex interaction of several clues, and you shouldn't feel bad about missing them. At other times, the credited response will be something you could have made by combining two clues. If this is the case, figure out why you didn't see it and then commit to noticing that kind of deduction in the future.

The first two games in this chapter use some of the most common deductions found on the LSAT. Make sure you pay close attention to them as you work through the next game and review your work. The better you get at pattern recognition, the better you will do on the games section. To help you with this, you'll find a discussion below about making deductions and an exercise to help you practice.

Range and Block Clue Deductions Range and block clues lend themselves to some quick deductions. You can approach these very quickly. Think back to the game in Lesson 1. The first clue was symbolized as S...W. We were able to deduce from this that W could not be at 1:00 and S could not be at 6:00. The same logic is true of block clues. If A always immediately precedes B, then B cannot be first and A cannot be last. One note of warning with block clues though: be careful with reversible blocks such as the WY block clue in Game 1. No deduction can be made with that clue alone since either W or Y could be first. On the next page we have recreated some of the clues from this section and placed them next to an example diagram. Do your best to best to mark any deduction you find and then read the explanations.

Concrete Clue Deductions Concrete clues provide highly specific information. Specific information is concise and keeps your diagram neat. Consider the final clue above. While we could deduce that if B is neither first nor last, then it must be somewhere in positions two through six, that deduction is not super helpful. The same is true of the first example. If E is fifth and presuming that elements can be placed only once, then logically it cannot be placed elsewhere. However, you don't want to clutter up your diagram with information about where E cannot go if you already know where it could be. As a result, count your blessings when you have a concrete clue, but do not waste time finding single clue deductions with this type of clue. Instead, look at how concrete clues interact with other clues.

DEDUCTION EXERCISE

1. B...A...C

1	2	3	4	5	6	7

 2. J
:
W

5
4
3
2
1

 3. A...B
:
C

1	2	3	4	5	6	7

4. Y...X

1	2	3	4	5	6	7

5. Y...X

1	2	3	4

6. GBBBG

1	2	3	4	5	6	7

 7. J
-
W

5
4
3
2
1

8. PP

1	2	3	4	5	6	7

Cracking Deduction Exercise—Answers and Explanations

1. Since C is last in the range, it cannot be first. Likewise, B cannot be last. However, with longer ranges, more can be deduced. C follows not one but two elements. Therefore, C cannot be second either. Likewise, A follows B so it cannot be first. You can also apply the same logic to the end of the diagram. B cannot be second to last and A cannot be last. Your deductions should look like this.

1	2	3	4	5	6	7
K	C				B	B A

2. This deduction was hopefully straightforward for you. The one twist to this deduction is that the diagram runs horizontally instead of vertically. However, if you followed our advice to make the clue match the diagram, you will not have had any problems. W cannot live on the top floor and J cannot live on the ground floor.

5	W
4	
3	
2	
1	J

3. This next one was a bit more nuanced. You have to be careful since you don't know the order of B and C. Neither one can be first, but either can be second. On the end of the ordering diagram, things are a bit more straightforward. Since A must be before two other elements, A cannot be last or second to last.

1	2	3	4	5	6	7
B C					A	A

4. To show you the dangers of confusing symbolizations with deductions, there are two possible diagrams for this clue depending on the game. In this first example, there is a simple ordering game with one element per category. As a result, swapping the clue is a valid deduction. Since only one element can be in each location, X cannot be last and Y cannot be first.

1	2	3	4	5	6	7
Y						X

5. The second example for this clue allows two elements to belong in each space. It may have been tempting to make the same deduction as above. However, X and Y could occur in the same space without violating the clue. Remember that the clue only restricts Y coming before X. As a result, Y could follow X or be placed in the same space as X. Therefore, you cannot make a deduction using this clue on this diagram. Your diagram should be blank.

1	2	3	4
--	--	--	--

6. The fact that there are exactly three boys means that boys will never be first or last in this diagram.

1	2	3	4	5	6	7
~B						~B

7. With this deduction, remember to take into account not only the order of the two elements but also the fixed distance between them. Since J is two floors above W, he cannot be on the first or second floors. Likewise, since J is two floors above W, W cannot be on the top or the second highest floor.

5	W
4	W
3	
2	J
1	J

8. Antiblock clues are very useful. However, their utility only becomes evident once the placement of other elements is known. As a result, there are no single clue deductions that can be made with antiblocks. Your diagram should be blank.

1	2	3	4	5	6	7

MULTICATEGORY ELEMENTS AND 2D GAMES

As we showed in the discussion about clue symbolization, some elements can be placed into more than one category. We showed you that the best way to deal with this issue in the elements was to use upper- and lowercase letters. However, good symbolization is only half of what you need to master every game. You also need a solid, functional diagram that helps you organize the elements efficiently and accurately. Whenever you have elements that need to be tracked in more than one way, you have what we call a 2-dimensional or 2D game. 2D games, by definition, are more complex than 1D games simply because there is more information to note in the diagram. Additionally, the LSAT question writers will have more leeway in how they phrase the questions.

Think about the first game we did. What if Patterson was meeting with lawyers and accountants? In addition to tracking the order of her meetings, we would also need to track what type of job each person had. The question writers could then ask questions such as “if Patterson’s first meeting is with a lawyer, which of the following could be a valid time for her workout?” Ouch! As you can see, these types of games are a bit rougher than 1D games.

The trick to mastering these games is to separate your diagram into two rows and label each row with a relevant category. To practice this, we’ll walk you through Step 1 of Game 2. Once we’ve done this, you can work Game 2 on your own.

Game 2

On each of exactly seven consecutive days (day 1 through day 7), a pet shop features exactly one of three breeds of kitten—Himalayan, Manx, Siamese—and exactly one of three breeds of puppy—Greyhound, Newfoundland, Rottweiler. The following conditions must apply:

Greyhounds are featured on day 1.

No breed is featured on any two consecutive days.

Any breed featured on day 1 is not featured on day 7.

Himalayans are featured on exactly three days, but not on day 1.

Rottweilers are not featured on day 7, nor on any day that features Himalayans.

Step 1: Diagram and Inventory First, ask yourself what are you doing to the elements. We are told that the pet shop will feature the animals on consecutive days. Therefore, this is an Ordering game and the numbers one through seven should form the core of your diagram. Next, note that there are now two categories of pets: kittens and puppies. Using the same method as described above, use uppercase letters for one group and lowercase letters for the other.

K: H M S

p: g n r

Finally, the setup specifically notes that the pet shop will feature exactly one kitten...and exactly one puppy. Thus, we need to create a separate row on the diagram to represent this. Your final diagram should look like this.

K: HMS							
p: gnr	1	2	3	4	5	6	7
— — $\frac{K}{p}$ — —	—	—	—	—	—	—	—

Now that we have provided the diagram for Game 2 and discussed multiple ways to categorize and symbolize clues, turn the page and work Game 2 on your own. As with Game 1, don't worry about timing as much as focusing on how to use the basic approach with more complex games. Finally, a hint: remember that the point of symbolization is to provide you with visual puzzle pieces that drop directly into the diagram. Do your best to symbolize each clue in a way that matches the diagram.

Game 2 and its questions are from PrepTest 32, Section 3, Questions 19–24.

GAME 2

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Rottweilers are not featured on day 7, nor on any day that features Himalayans.

1. Which one of the following could be the order in which the breeds of kitten are featured in the pet shop, from day 1 through day 7?

- (A) Himalayan, Manx, Siamese, Himalayan, Manx, Himalayan, Siamese
- (B) Manx, Himalayan, Siamese, Himalayan, Manx, Himalayan, Manx
- (C) Manx, Himalayan, Manx, Himalayan, Siamese, Manx, Siamese
- (D) Siamese, Himalayan, Manx, Himalayan, Siamese, Siamese, Himalayan
- (E) Siamese, Himalayan, Siamese, Himalayan, Manx, Siamese, Himalayan

2. If Himalayans are not featured on day 2, which one of the following could be true?

- (A) Manx are featured on day 3.
- (B) Siamese are featured on day 4.
- (C) Rottweilers are featured on day 5.
- (D) Himalayans are featured on day 6.
- (E) Greyhounds are featured on day 7.

3. Which one of the following could be true?

- (A) Greyhounds and Siamese are both featured on day 2.
- (B) Greyhounds and Himalayans are both featured on day 7.
- (C) Rottweilers and Himalayans are both featured on day 4.
- (D) Rottweilers and Manx are both featured on day 5.
- (E) Newfoundlands and Manx are both featured on day 6.

4. If Himalayans are not featured on day 7, then which one of the following pairs of days CANNOT feature both the same breed of kitten and the same breed of puppy?

- (A) day 1 and day 3
- (B) day 2 and day 6
- (C) day 3 and day 5
- (D) day 4 and day 6
- (E) day 5 and day 7

5. Which one of the following could be true?

- (A) There are exactly four breeds that are each featured on three days.
- (B) Greyhounds are featured on every day that Himalayans are.
- (C) Himalayans are featured on every day that Greyhounds are.
- (D) Himalayans are featured on every day that Rottweilers are not.
- (E) Rottweilers are featured on every day that Himalayans are not.



6. If Himalayans are not featured on day 7, which one of the following could be true?

- (A) Greyhounds are featured on days 3 and 5.
- (B) Newfoundlands are featured on day 3.
- (C) Rottweilers are featured on day 6.
- (D) Rottweilers are featured only on day 3.
- (E) Rottweilers are featured on exactly three days.



Self-Assessment

Steps 1–3 Assessment

Steps 4–6 Assessment